

## PATENT ABSTRACTS OF JAPAN

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(71)Applicant : HANA TEC KK

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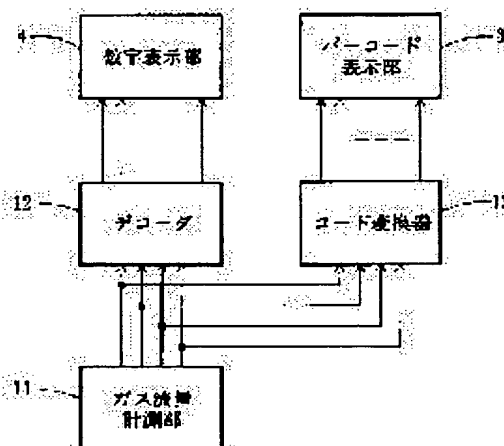
(72)Inventor : HANAI MUNEO

## (54) GAS METER

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To obtain a gas meter by which a gas consumption amount is read out easily and which does not require labor when data is input to a data acquisition device by a method wherein a display which displays the gas consumption amount in a bar code is provided and a bar-code reader is provided at a meter-reading device.

**SOLUTION:** A liquid-crystal display is installed at the front of a body case, and a bar-code display part 3 is provided at the liquid-crystal display. A gas consumption amount which is measured by a gas-flow-rate measuring part 11 is input in a BCD code so as to be input to a decoder 12 and a code converter 13. In the decoder 12, the input BCD code is converted into a segment signal corresponding to a numerical value in every digit so as to be added to a numeral display part 4, and the gas consumption amount is displayed in numerals. On the other hand, the bar-code converter 13 to which the BCD code is input converts the gas consumption amount into a code signal which is used to select and drive a bar code which corresponds to the numerical value. The converted code signal is given to the bar-code display part 3 so as to be displayed in the bar code. When a meter is read, the bar-code display part 3 is scanned, and the bar code is read out easily by a bar-code reader.



## LEGAL STATUS

[Date of request for examination]

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of rejection]

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**CLAIMS**

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[Claim(s)]

[Claim 1] The gas meter characterized by having the drop which displays the amount of the gas used by the bar code.

[Claim 2] The gas meter characterized by having the bar code display which displays said amount of the gas used on said indicator by the bar code in the gas meter which has the indicator which displays the amount of the gas used numerically.

[Claim 3] Said figure and said bar code display are a gas meter according to claim 2 which is that by which it is indicated by turns by lighting.

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## DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to gas meters, such as town gas and LP gas.

[0002]

[Description of the Prior Art] As for a gas meter in recent years, what is numerically displayed on electronic drops, such as liquid crystal, is spreading electronically the amount of the gas used which measured the amount of the gas used and was measured. Moreover, what the measured amount of the gas used inserts the plug of gas inspection-of-a-meter equipment in the plug socket of a gas meter, and performs read in and fee calculation to gas inspection-of-a-meter equipment with gas inspection-of-a-meter equipment has appeared.

[0003]

[Problem(s) to be Solved by the Invention] In the above-mentioned conventional gas meter, since the amount of the gas used is displayed numerically, and the inspection-of-a-meter person read the amount of the gas used currently displayed and it inputted by the key stroke when calculating a tariff etc. by inputting this amount of the gas used into gas inspection-of-a-meter equipment, or when the amount of the gas used was memorized to a data collector, there was a problem of taking time in the inspection of a meter. Moreover, the approach of inserting a plug in a plug socket and incorporating data directly has the problem that regular waterproofing etc. must be elaborated in a gas meter, when a plug must be inserted in a plug socket at the time of the inspection of a meter and an inspection-of-a-meter activity becomes troublesome too.

[0004] This invention is made paying attention to the above-mentioned trouble, and the read of the amount of the gas used is easy, and it aims at offering the gas meter which the data input to gas inspection-of-a-meter equipment, a data collector, etc. does not take time and effort.

[0005]

[Means for Solving the Problem] The gas meter of invention concerning claim 1 of the claim of this application is equipped with the drop which displays the amount of the gas used by the bar code. If a bar code display is traced with the scanner of a bar code reader by equipping inspection-of-a-meter equipment with a bar code reader, the amount of the gas used will be inputted for example, into gas inspection-of-a-meter equipment simply and easily.

[0006] Moreover, the gas meter of invention concerning claim 2 is equipped with the bar code display which displays said amount of the gas used on said indicator by the bar code in what has the indicator which displays the amount of the gas used numerically. In this gas meter, if a bar code is scanned with the scanner of a bar code reader while an inspection-of-a-meter person can read visually, since the amount of the gas used is numerically displayed like old, the amount of the gas used will be inputted into inspection-of-a-meter equipment etc. simply and easily.

[0007] Moreover, as for the gas meter concerning claim 3, a lighting indication of the digital display section and the bar code display is given by turns. Since lighting is alternation, it compares with the case of only old digital display, and power consumption does not increase.

[0008]

[Embodiment of the Invention] Hereafter, the gestalt of operation explains this invention to a detail further. Drawing 1 is the elevation of the 1 operation gestalt gas meter of this invention.

As for this gas meter, the liquid crystal display 2 was formed in the front face of the body case 1, and the liquid crystal display 2 is equipped with the bar code display 3. The amount of the gas used electronically measured inside the body case 1 of a gas meter is displayed on the bar code display 3. When checking meter of the amount of the gas used of this gas meter, it can read simply and easily by scanning the bar code display 3 by the bar code reader with which gas inspection-of-a-meter equipment is equipped.

[0009] Drawing 2 is drawing showing the drop of the gas meter which shows other operation gestalten of this invention. This indicator 2 is equipped with the digital display section 4 which displays the amount of the gas used numerically as usual, and the bar code display 3 which displays the amount of the gas used by the bar code. Drawing 3 is the block diagram showing the drive circuit of the indicator of this operation gestalt gas meter. The amount of the gas used measured in the quantity-of-gas-flow measurement section 11 is outputted by BCD, and is inputted into a decoder 12 and a code converter 13. In a decoder 12, inputted BCD is changed into the segment signal according to a numeric value for every digit, and, in addition to the digital display section 4, the digital display section 4 displays the amount of the gas used numerically. On the other hand, the code converter 13 into which BCD was inputted is changed into the code for carrying out the selection drive of the bar code corresponding to the numeric value. The changed code signal is given to the bar code display 3, and a bar code display is made. The amount of the gas used and the equivalent as which this bar code display was displayed on the digital display section 4 are displayed.

[0010] According to this operation gestalt gas meter, if the digital display section 4 is viewed, the amount of the gas used can be read by the eye as usual, and if the bar code display 3 is scanned by the bar code reader, the amount of the gas used can be read and it can memorize to a data collector or gas inspection-of-a-meter equipment as it is. Drawing 4 is the block diagram showing the drive circuit of the indicator of the operation gestalt gas meter of further others of this invention. What is shown in drawing 2, and the same thing are used, and the drop of this gas meter adds the display electronic switch 15 to the circuit which also showed the drive circuit to drawing 3.

[0011] The display electronic switch 15 is the timing pulse signal T1 with which ON/OFF changes by turns every 5 seconds, and T2. It outputs and is a pulse signal T1. To the bar code display 3, it is a pulse signal T2. It adds to the digital display section 4. Thereby, the bar code display 3 and the digital display section 4 are turned on by turns every 5 seconds, and the power consumption of a gas meter is mitigated. Of course, the ON/OFF time amount of this timing pulse signal is not restricted to 5 seconds, and may be set up for a long time or short from 5 seconds if needed.

[0012] Moreover, the drop used with each operation gestalt may not be restricted to liquid crystal, and may be the thing of other electronic display principles, such as LED.

[0013]

[Effect of the Invention] It can read into immediate-data collection equipment or gas inspection-of-a-meter equipment, without operating the key input section etc., if it reads by the bar code reader since according to this invention it has the bar code display of the indicator of a gas meter and the amount of the gas used is displayed. Therefore, the amount inspection of a meter of the gas used can carry out simply and easily.

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**TECHNICAL FIELD**

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[Field of the Invention] This invention relates to gas meters, such as town gas and LP gas.

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PRIOR ART

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EFFECT OF THE INVENTION

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TECHNICAL PROBLEM

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[Problem(s) to be Solved by the Invention] In the above-mentioned conventional gas meter, since the amount of the gas used is displayed numerically, and the inspection-of-a-meter person read the amount of the gas used currently displayed and it inputted by the key stroke when calculating a tariff etc. by inputting this amount of the gas used into gas inspection-of-a-meter equipment, or when the amount of the gas used was memorized to a data collector, there was a problem of taking time in the inspection of a meter. Moreover, the approach of inserting a plug in a plug socket and incorporating data directly has the problem that regular waterproofing etc. must be elaborated in a gas meter, when a plug must be inserted in a plug socket at the time of the inspection of a meter and an inspection-of-a-meter activity becomes troublesome too. [0004] This invention is made paying attention to the above-mentioned trouble, and the read of the amount of the gas used is easy, and it aims at offering the gas meter which the data input to gas inspection-of-a-meter equipment, a data collector, etc. does not take time and effort.

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MEANS

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[Means for Solving the Problem] The gas meter of invention concerning claim 1 of the claim of this application is equipped with the drop which displays the amount of the gas used by the bar code. If a bar code display is traced with the scanner of a bar code reader by equipping inspection-of-a-meter equipment with a bar code reader, the amount of the gas used will be inputted for example, into gas inspection-of-a-meter equipment simply and easily.

[0006] Moreover, the gas meter of invention concerning claim 2 is equipped with the bar code display which displays said amount of the gas used on said indicator by the bar code in what has the indicator which displays the amount of the gas used numerically. In this gas meter, if a bar code is scanned with the scanner of a bar code reader while an inspection-of-a-meter person can read visually, since the amount of the gas used is numerically displayed like old, the amount of the gas used will be inputted into inspection-of-a-meter equipment etc. simply and easily.

[0007] Moreover, as for the gas meter concerning claim 3, a lighting indication of the digital display section and the bar code display is given by turns. Since lighting is alternation, it compares with the case of only old digital display, and power consumption does not increase.

[0008]

[Embodiment of the Invention] Hereafter, the gestalt of operation explains this invention to a detail further. Drawing 1 is the elevation of the 1 operation gestalt gas meter of this invention. As for this gas meter, the liquid crystal display 2 was formed in the front face of the body case 1, and the liquid crystal display 2 is equipped with the bar code display 3. The amount of the gas used electronically measured inside the body case 1 of a gas meter is displayed on the bar code display 3. When checking meter of the amount of the gas used of this gas meter, it can read simply and easily by scanning the bar code display 3 by the bar code reader with which gas inspection-of-a-meter equipment is equipped.

[0009] Drawing 2 is drawing showing the drop of the gas meter which shows other operation gestalten of this invention. This indicator 2 is equipped with the digital display section 4 which displays the amount of the gas used numerically as usual, and the bar code display 3 which displays the amount of the gas used by the bar code. Drawing 3 is the block diagram showing the drive circuit of the indicator of this operation gestalt gas meter. The amount of the gas used measured in the quantity-of-gas-flow measurement section 11 is outputted by BCD, and is inputted into a decoder 12 and a code converter 13. In a decoder 12, inputted BCD is changed into the segment signal according to a numeric value for every digit, and, in addition to the digital display section 4, the digital display section 4 displays the amount of the gas used numerically. On the other hand, the code converter 13 into which BCD was inputted is changed into the code for carrying out the selection drive of the bar code corresponding to the numeric value. The changed code signal is given to the bar code display 3, and a bar code display is made. The amount of the gas used and the equivalent as which this bar code display was displayed on the digital display section 4 are displayed.

[0010] According to this operation gestalt gas meter, if the digital display section 4 is viewed, the amount of the gas used can be read by the eye as usual, and if the bar code display 3 is scanned by the bar code reader, the amount of the gas used can be read and it can memorize to a data collector or gas inspection-of-a-meter equipment as it is. Drawing 4 is the block diagram

showing the drive circuit of the indicator of the operation gestalt gas meter of further others of this invention. What is shown in drawing 2 , and the same thing are used, and the drop of this gas meter adds the display electronic switch 15 to the circuit which also showed the drive circuit to drawing 3 .

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is drawing showing the front face of the 1 operation gestalt gas meter of this invention.

[Drawing 2] It is drawing showing the drop of other operation gestalt gas meters of this invention.

[Drawing 3] It is the block diagram showing the drive circuit of the indicator of the operation gestalt gas meter of drawing 2 .

[Drawing 4] It is the block diagram showing the drive circuit of the indicator of the operation gestalt gas meter of further others of this invention.

[Description of Notations]

- 1 Case Body
- 2 Drop
- 3 Bar Code Display
- 4 Digital Display Section

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[Translation done.]

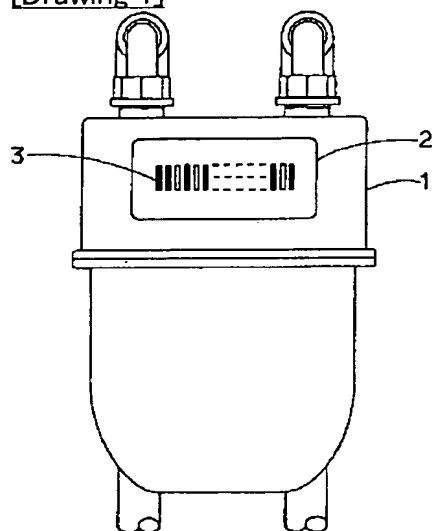
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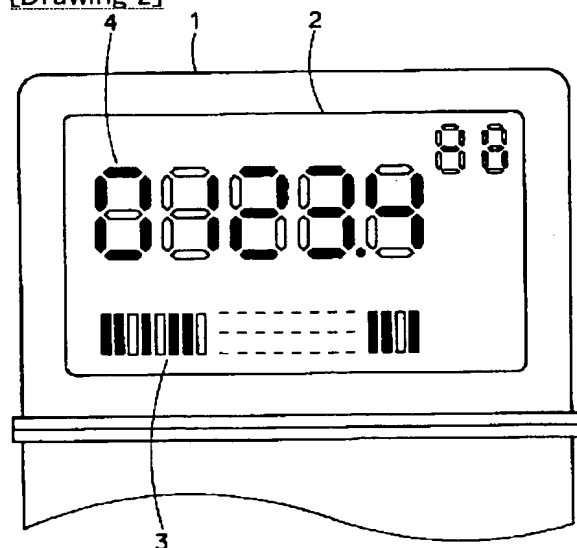
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**DRAWINGS**

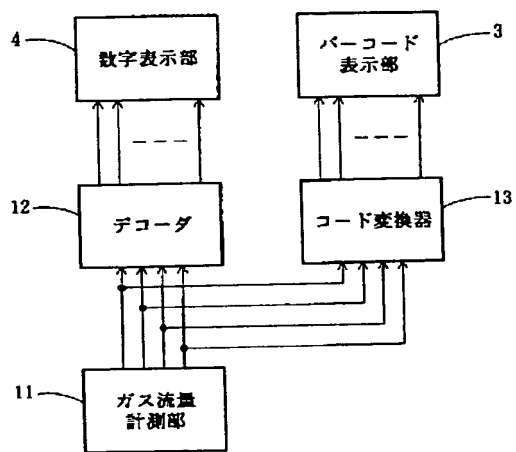
[Drawing 1]



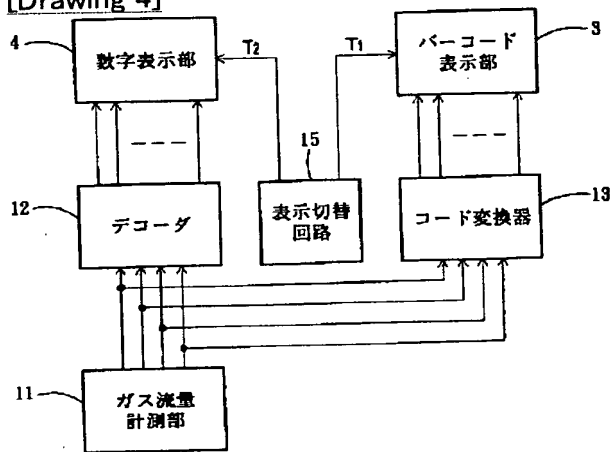
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Translation done.]

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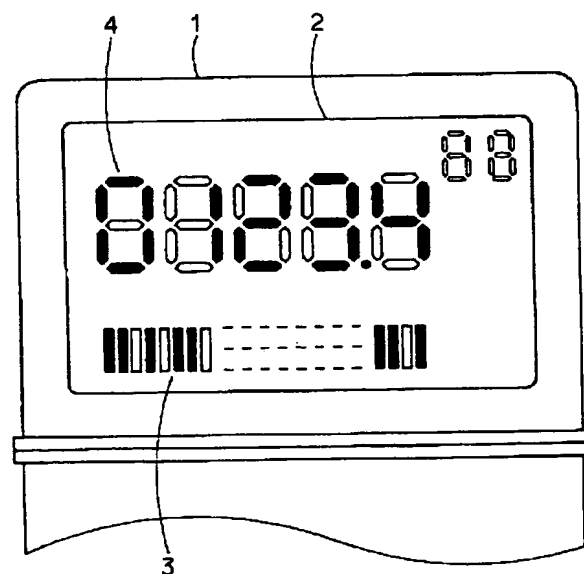
(74) 代理人 弁理士 中村 茂信

(54) 【発明の名称】 ガスメータ

(57) 【要約】

【課題】 ガス検針を簡単、容易に行えるガスメータを提供する。

【解決手段】 ガスメータの表示器 2 にガス使用量を表示するバーコード表示部 3 を設ける。



## 【特許請求の範囲】

【請求項1】 ガス使用量をバーコードで表示する表示器を備えたことを特徴とするガスメータ。

【請求項2】 ガス使用量を数字で表示する表示器を有するガスメータにおいて、

前記表示器に前記ガス使用量をバーコードで表示するバーコード表示部を備えたことを特徴とするガスメータ。

【請求項3】 前記数字と前記バーコード表示は、交互に点灯表示されるものである請求項2記載のガスメータ。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】 この発明は、都市ガス、LPガス等のガスメータに関する。

## 【0002】

【従来の技術】 近年のガスメータは、電子的にガス使用量を計測し、計測したガス使用量を液晶等の電子的な表示器に数字で表示するものが普及してきている。また、計測したガス使用量は、ガス検針装置のプラグをガスメータのコンセントに差し込んでガス検針装置に読み込み、料金計算をガス検針装置で行うものも出現している。

## 【0003】

【発明が解決しようとする課題】 上記した従来のガスメータでは、ガス使用量を数字で表示するものであるから、このガス使用量をガス検針装置に入力して料金等を計算する場合、あるいはガス使用量をデータ収集装置に記憶する場合、表示されているガス使用量を検針者が読み取り、キー操作により入力するので、検針に手間取るといった問題があった。また、プラグをコンセントに挿入してデータを直接取込む方法は、検針時にプラグをコンセントに挿入せねばならず、やはり検針作業が面倒となる上、ガスメータに常時の防水等に工夫を凝らさなければならないという問題がある。

【0004】 この発明は上記問題点に着目してなされたものであって、ガス使用量の読み取りが容易で、ガス検針装置、データ収集装置等へのデータ入力に手間を要しないガスメータを提供することを目的としている。

## 【0005】

【課題を解決するための手段】 この出願の特許請求の範囲の請求項1に係る発明のガスメータは、ガス使用量をバーコードで表示する表示器を備えている。検針装置にバーコードリーダを備えることにより、バーコードリーダのスクャナーでバーコード表示をなぞれば、簡単、容易にガス使用量が、例えばガス検針装置に入力される。

【0006】 また、請求項2に係る発明のガスメータは、ガス使用量を数字で表示する表示器を有するものにおいて、前記表示器に前記ガス使用量をバーコードで表示するバーコード表示部を備えている。このガスメータでは、従前と同様にガス使用量が数字で表示されるので、検針者が目視で読取れるとともに、バーコードリーダのスクャナーでバーコードをスキャンすれば、簡単、

容易にガス使用量が検針装置等に入力される。

【0007】 また、請求項3に係るガスメータは、数字表示部とバーコード表示部が交互に点灯表示される。点灯が交互なので、従前の数字表示のみの場合と比し、電力消費量が増加しない。

## 【0008】

【発明の実施の形態】 以下、実施の形態により、この発明をさらに詳細に説明する。図1は、この発明の一実施形態ガスメータの前面図である。このガスメータは本体ケース1の前面に液晶表示器2が設けられ、液晶表示器2は、バーコード表示部3を備えている。ガスメータの本体ケース1の内部で電子的に計測されたガス使用量はバーコード表示部3に表示される。このガスメータのガス使用量を検針する時は、ガス検針装置に備えるバーコードリーダでバーコード表示部3をスキャンすることにより、簡単、容易に読取ることができる。

【0009】 図2は、この発明の他の実施形態を示すガスメータの表示器を示す図である。この表示器2はガス使用量を従前通り数値で表示する数字表示部4と、ガス使用量をバーコードで表示するバーコード表示部3とを備えている。図3は、この実施形態ガスメータの表示器の駆動回路を示すブロック図である。ガス流量計測部11で計測されたガス使用量はBCDで出力され、デコーダ12とコード変換器13に入力される。デコーダ12では入力されたBCDを各桁毎に数値に応じたセグメント信号に変換して数字表示部4に加え、数字表示部4はガス使用量を数字で表示する。一方、BCDが入力されたコード変換器13は、その数値に対応したバーコードを選択駆動するためのコードに変換する。変換されたコード信号はバーコード表示部3に与えられ、バーコード表示がなされる。このバーコード表示は、数字表示部4に表示されたガス使用量と同値が表示される。

【0010】 この実施形態ガスメータによれば、数字表示部4を目視すると、従前通り、目でガス使用量が読取れるし、バーコード表示部3をバーコードリーダによりスキャンするとガス使用量を読取ることができ、そのままデータ収集装置やガス検針装置に記憶できる。図4は、この発明のさらに他の実施形態ガスメータの表示器の駆動回路を示すブロック図である。このガスメータの表示器は、図2に示すものと同様のものが使用され、駆動回路も図3に示した回路に表示切替回路15を付加したものである。

【0011】 表示切替回路15は、5秒毎にON/OFFが交互に変化するタイミングパルス信号T1、T2を出力し、パルス信号T1をバーコード表示部3に、パルス信号T2を数字表示部4に加える。これにより、バーコード表示部3と数字表示部4は5秒毎に交互に点灯し、ガスメータの電力消費量が軽減される。このタイミングパルス信号のON/OFF時間は、もちろん5秒に限られるものではなく、必要に応じ、5秒より長く、あ



るいは短く設定してもよい。

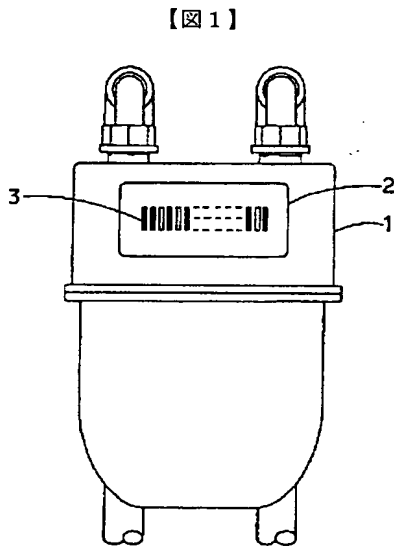
【0012】また、各実施形態で使用される表示器は、液晶に限られるものではなく、LED等他の電子的な表示原理のものであってもよい。

【0013】

【発明の効果】この発明によれば、ガスメータの表示器のバーコード表示部を備え、ガス使用量を表示しているため、バーコードリーダで読取ればキー入力部等を操作することなく、直接データ収集装置やガス検針装置に読込むことができる。そのため、ガス使用量検針が簡単、容易に行うことができる。

【図面の簡単な説明】

【図1】この発明の一実施形態ガスメータの前面を示す



図である。

【図2】この発明の他の実施形態ガスメータの表示器を示す図である。

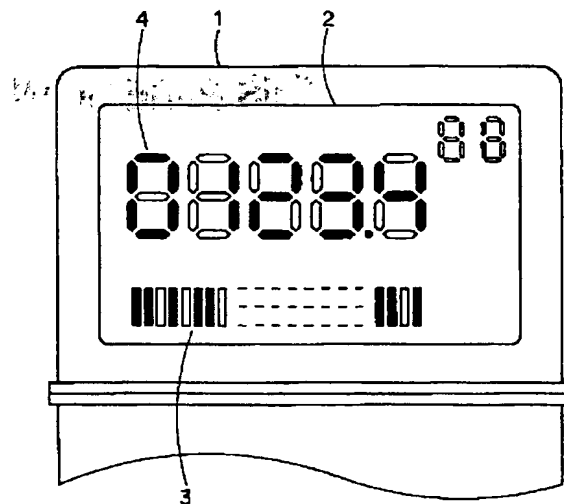
【図3】図2の実施形態ガスメータの表示器の駆動回路を示すブロック図である。

【図4】この発明のさらに他の実施形態ガスメータの表示器の駆動回路を示すブロック図である。

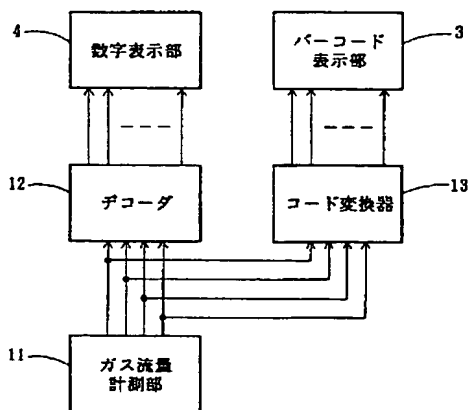
【符号の説明】

- 1 ケース本体
- 2 表示器
- 3 バーコード表示部
- 4 数字表示部

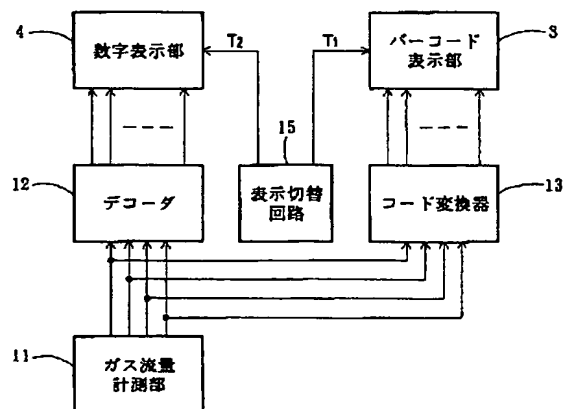
【図2】



【図3】



【図4】



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